UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/542,492	07/15/2005	Shoichi Kamoshita	900-528	5295

23117 7590 09/13/2007

NIXON & VANDERHYE, PC
901 NORTH GLEBE ROAD, 11TH FLOOR
ARLINGTON, VA 22203

EXAMINER	
EFTEKHARZADEH, ARDESHIR	

ART UNIT	PAPER NUMBER
2809	

MAIL DATE	DELIVERY MODE
09/13/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/542,492	KAMOSHITA, SHOICHI	
	Examiner	**Art Unit**	
	Ardeshir Eftekharzadeh	2809	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 January 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 January 2007* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *7/15/2005,12/07/2005*.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2, 6,12-13 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Kazuo et al, Japanese Application Publication H04-305981 A. (Reference is being made to a certified translation included with this letter).

Regarding **claim 1**, In Paragraph 2, lines 1-4 Kazuo et al teaches a prior art, light receiving device as shown in Figure 4. The light receiving device includes a PIN diode, mounted on a substrate 1 and wire 3 is bonded. Fig. 4 in Kazuo et al teaches the wire 3. It is evident in the Fig. 4 that one end of the wire 3 is connected to PIN diode 2 and the other end is connected to substrate 1. Evidently the signal from PIN diode has to be carried out and transferred to other electronic parts, it is then inherent that the portion of substrate that according to teachings of Fig. 4 the PIN diode 2 is connected must be itself electrically conducting. "an electrode" reads on this portion. In Paragraph 7, lines 4-8, Kazuo et al teaches that the in device of invention, the structure that is incased has not changed from the prior art light receptor. Consequently "a substrate having an electrode" reads on the substrate 1 with the portion of which the wire 3 is connected to. "Photodetector electrically connected to the electrode" reads on the PIN diode wire

bonded with wire 3. In Paragraph 7, lines 8-13 Kazuo et al teaches that the light receiving element is double encapsulated in two layers of a resin 7 and a resin 8. Furthermore In Paragraph 8, lines 1-2 Kazuo et al teaches that the resins used for these resins 7 and 8 are transparent. Therefore "light-transmissive resin encapsulating portion" reads on combination of resin 7 and resin 8 as taught by Kazuo et al. In Paragraph 8, lines 8-11 Kazuo et al teaches that resin 8 has a filter property that cuts long wavelengths and absorbs wavelengths near 1050 nm and above. The wavelength of 1050 nm evidently lies in the infra-red region and therefore "an infrared-blocking layer either inside the light-transmissive resin encapsulating portion or on an outer surface of the light-transmissive resin encapsulating portion for blocking infrared radiation from the outside from reaching the photodetector" reads on layer resin 8.

Regarding **claim 2**, In Paragraph 2, lines 1-4 Kazuo et al teaches a prior art, light receiving device as shown in Figure 4. The light receiving device includes a PIN diode, mounted on a substrate 1 and wire 3 is bonded. Fig. 4 in Kazuo et al teaches the wire 3. It is evident in the Fig. 4 that one end of the wire 3 is connected to PIN diode 2 and the other end is connected to substrate 1. Evidently the signal from PIN diode has to be carried out and transferred to other electronic parts, it is then inherent that the portion of substrate that according to teachings of Fig. 4 the PIN diode 2 is connected must be itself electrically conducting. "an electrode" reads on this portion. In Paragraph 7, lines 4-8, Kazuo et al teaches that the in device of invention, the structure that is incased has not changed from the prior art light receptor. Therefore it can be concluded that Kazuo et al teaches a device including a substrate and photodiode inherently having an

electrode and a wire connected to that electrode. Consequently "a substrate having an electrode" reads on the substrate where a diode is mounted on. "Photodetector electrically connected to the electrode" reads on the PIN diode. In Paragraph 7, lines 8-13 Kazuo et al teaches that the light receiving element is double encapsulated in two layers of a resin 7 and a resin 8. Furthermore In Paragraph 8, lines 1-2 Kazuo et al teaches that the resins used for these resins 7 and 8 are transparent. Therefore "light-transmissive resin encapsulating portion" reads on combination of resin 7 and resin 8 as taught by Kazuo et al. In Paragraph 8, lines 8-11 Kazuo et al teaches that the resin 8 has a filter property that is obtained by mixing a dye that absorbs wavelengths near 1050 nm and above. The wavelength of 1050 nm evidently lies in the infra-red region and therefore "infrared-absorbing substance" reads on the dye that has been mixed with resin 8 as taught by Kazuo et al.

Regarding **claim 6**, Kazuo in Fig. 4 teaches a package 6, as taught in Paragraph 7, line 7 taught to be encasing the structure, evidently covering all sides except the window 5.

Regarding **claim 12,** according to teachings in Kazuo et al, Fig. 4, PIN diode is connected to a portion (not referenced by a reference numeral) by wire bond. **Claim 12** merely recites a step of "electrically connecting a photodetector to an electrode provided on a substrate". "an electrode" reads on the portion on Fig. 4 where evidently wire 3 is connected. Kazuo et al teaches the existence of wire 3, evidently "electrically connecting" the PIN diode which "a photodetector" reads on to a certain portion of substrate, which "an electrode" reads on. It then follows that that Kazuo implicitly and

inherently teaches that wire 3 was formed prior to its existence. Therefore “electrically connecting a photodetector to an electrode provided on a substrate” reads on forming wire 3, as implicitly and inherently taught by Kazuo et al. **Claim 12** merely recites a step of “forming a light-transmissive resin encapsulating portion on the substrate so that the photodetector is entirely encapsulated in the light-transmissive resin encapsulating portion”. In Paragraph 7, lines 8-13 Kazuo et al teaches that the light receiving element is double encapsulated in two layers of resin 7 and resin 8. Furthermore in Paragraph 8, lines 1-2 Kazuo et al teaches that the resins used for these layers 7 and 8 are transparent. By teaching that such encapsulation exists, Kazuo et al, inherently teaches that they have been formed at a prior time to their existence. Fig. 4 teaches that the entire PIN diode 2 is encapsulated in the encapsulation. “light receiving element” reads on PIN diode 2 and “forming a light-transmissive resin encapsulating portion on the substrate so that the photodetector is entirely encapsulated in the light-transmissive resin encapsulating portion” reads on forming resin 7 and 8 as inherently taught by Kazuo et al. Furthermore in Paragraph 8, lines 8-11 Kazuo et al teaches that the resin 8 has a filter property that is obtained by mixing a dye that absorbs wavelengths near 1050 nm and above. The wavelength of 1050 nm evidently lies in the infra-red region. Therefore it is evident that formation of layer with resin 8, has been to filter out or “block” infrared radiation from reaching the photodiode.

Regarding **claim 13**, Every limitation recited in **claim 12** is repeated verbatim in **claim 13** except the following: “in the step of forming the light-transmissive resin encapsulating portion, the light-transmissive resin encapsulating portion is formed of a

transparent resin containing an infrared-absorbing substance." In Paragraph 8, lines 8-11 Kazuo et al teaches that the resin 8 has a filter property that is obtained by mixing a dye that absorbs wavelengths near 1050 nm and above. The wavelength of 1050 nm evidently lies in the infra-red region. "the infrared-absorbing substance" reads on the dye that absorbs wavelengths near 1050 nm and above. "forming a light-transmissive resin encapsulating portion formed of a resin containing an infrared-absorbing substance" reads on forming resin 8 having the filtering property by mixing the dye that absorbs the wavelengths near 1050 nm and above.

Regarding **claim 16,** the limitation "forming a light-shielding frame for covering all the outer surface of the light-transmissive resin encapsulating portion except an outer surface thereof on a light-receiving surface side of the photodetector" merely recites that the light-shielding frame is formed. In Fig. 4, Kazuo et al teaches the packaging 6, which is evident from Fig. 4 to be a frame shielding light from reaching the device from outside except the direction of window 5. That Kazuo et al implicitly contains a teaching for forming is evident from the fact that the packaging 6 to must have been formed prior to its existence. Therefore the step of "forming a light-shielding frame" reads on implicit teaching which is inherent in the disclosure by Kazuo et al as the existence of such frame. **Claim 16** further recites that "the step of forming the light-shielding frame being carried out before the step of forming the resin encapsulating portion". For the formation of a resin encapsulated device <u>encased inside a packaging 6</u> as taught by Kazuo et al there are only two ways. Either the packaging 6 is formed first and resin

encapsulation has been performed afterward or the packaging 6 is formed after encapsulating the device in resin. Since it has been held (*Ex parte Rubin,* 128 USPQ 440 (Bd. App. 1959), See MPEP 2144.04) that Changes in Sequence does not render a claim limitation patentable "the step of forming the light-shielding frame being carried out before the step of forming the resin encapsulating portion" reads on implicit teaching in Kazuo et al that the packaging 6 does exist and therefore implicitly and inherently taught to have been formed in one order or another.

Claim 18 is rejected under 35 U.S.C. 102(b) as being anticipated by <u>Masuda et al, US Patent 6,323,340</u>, henceforth referred to as Masuda et al.

Regarding **claim 18**, Masuda et al in column 18, lines 19-26 teaches a heat ray shielding material made of at least one of the compounds selected from the group consisting of phthalocyanine compounds. Therefore Masuda has taught that more than one or "a plurality of phthalocyanine dyes" may be chosen. Masuda then in column 18, line 25, teaches that the material comprises resin since it teaches at least one of the compounds plus resin. It then teaches in column 18, lines 29-30 that the amount of the phthalocyanine compound and/or near infrared absorption dye incorporated being in the range of 0.0005 to 20 parts by weight, preferably 0.0010 to 10 parts by weight, based on 100 parts by weight of the resin. It can be seen that the material that Masuda et al is teaching is composed of mostly resin (the weight of the resin is 8-9 times more than the dye) It can be seen then the "A light-transmissive resin composition" reads on a heat ray

shielding material taught by Masuda et al. since it has been taught in Masuda et al that phthalocyanine compound taught according to the first aspect, has been further disclosed in Abstract, line 3, to have selective absorption in near infrared ray and it is evident that combining such nearinfrared ray absorbing material with resin provides it with "infrared radiation blockage function".

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 3, 4, 6, 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kazuo et al, Japanese Application Publication H04-305981 A. (Reference is being made to a certified translation included with this letter) in view of Ueda et al, US Patent Application Publication US 2003/0186180, henceforth referred to as Ueda et al.

Regarding **claim 3**, Kazuo et al in paragraph 2, lines 1-7 teaches a light receiving device as a structure with PIN diode mounted on a substrate and a wire 3 protected by encapsulation in a transparent resin 4, after boning to wire 3. Kazuo et al teaches further that the device is encapsulated further in a package 6 equipped with a filter 5. Furthermore in Paragraph 7, lines 8-13 Kazuo et al while teaching the invention in the reference and having pointed out that the structure that is incased has not changed

from the prior art light receptor, teaches that the light receiving element is double encapsulated in two layers of a resin 7 and a resin 8. Furthermore In Paragraph 8, lines 1-2 Kazuo et al teaches that the resins used for these resins 7 and 8 are transparent. It further teaches that the resin 8 forms the layer that blocks infrared and that this layer is inside. Ueda et al in Paragraph 113, lines 4-10, teaches an infrared absorbing layer. Such layer's composition has been taught previously in Ueda et al, in Paragraph 34, lines 1-6, as being formed from an infrared absorbing compound-impregnated polymer layex and examples of polymer has been taught to include an acryl type resin. In Paragraph 113, lines 4-10 Ueda et al, teaches that the infrared absorbing layer may be directly provided on a support or there may provided a layer between support and the infrared absorbing layer. The infrared absorbing layer may be provided farthest from the support (i.e. outermost layer) or in the middle (i.e. intermediate layer). Therefore Ueda et al teaches that an infrared absorbing layer formed from an acryl resin impregnated by infrared absorbing dye on the outermost layer of device has the predictable result of blocking infrared radiation from reaching the diode. . It would have been obvious to one of ordinary skill in the art at the time of invention to substitute the layer formed from resin 8 as taught by Kazuo et al, by a layer formed by coating the outside of the device by a layer of acryl resin impregnated by infrared absorbing compound as taught by Ueda et al, to achieve the predictable result of blocking infrared radiation from reaching the PIN diode.

Regarding **claim 4**, Kazuo et al in paragraph 2, lines 1-7 teaches a light receiving device as a structure with PIN diode mounted on a substrate and a wire 3 protected by

encapsulation in a transparent resin 4, after boning to wire 3. Kazuo et al teaches further that the device is encapsulated further in a package 6 equipped with a filter 5. Furthermore in Paragraph 7, lines 8-13 Kazuo et al while teaching the invention in the reference and having pointed out that the structure that is incased has not changed from the prior art light receptor, teaches that the light receiving element is double encapsulated in two layers of a resin 7 and a resin 8. Furthermore In Paragraph 8, lines 1-2 Kazuo et al teaches that the resins used for these resins 7 and 8 are transparent. It further teaches that the resin 8 forms the layer that blocks infrared and that this layer is inside. Ueda et al in Paragraph 113, lines 4-10, teaches an infrared absorbing layer. Such layer's composition has been taught previously in Ueda et al, in Paragraph 34, lines 1-6, as being formed from an infrared absorbing compound-impregnated polymer layex and examples of polymer has been taught to include an acryl type resin. In Paragraph 113, lines 4-10 Ueda et al, teaches that the infrared absorbing layer may be directly provided on a support or there may provided a layer between support and the infrared absorbing layer. The infrared absorbing layer may be provided farthest from the support (i.e. outermost layer) or in the middle (i.e. intermediate layer). Therefore Ueda et al teaches that an infrared absorbing layer formed from an acryl resin impregnated by infrared absorbing dye on the outermost layer of device has the predictable result of blocking infrared radiation from reaching the diode. It would have been obvious to one of ordinary skill in the art at the time of invention to substitute the layer formed from resin 8 as taught by Kazuo et al, by a layer formed from acryl resin impregnated by infrared absorbing compound as taught by Ueda et al as an intermediate layer between

layer formed of resin 7 and the one formed of resin 8, instead of using an infrared absorbing dye in resin 7 or 8 (that is use them without a dye for encapsulation of PIN diode) to achieve the predictable result of blocking infrared radiation from reaching the PIN diode.

Regarding **claim 14**, in Paragraph 113, lines 4-10, Ueda et al teaches providing the infrared absorbing layer farthest from the support (i.e. outermost layer) the infrared absorbing layer has been taught in the same reference, in Paragraph 34, lines 1-6 to include an infrared absorbing compound-impregnated polymer latex. The polymer latex has been taught to include an acryl type resin, well known to be transparent. It would have been obvious to one of ordinary skill in the art at the time of invention to substitute forming the layer from resin 8 as taught by Kazuo et al, by providing a layer formed from an acryl type resin impregnated by infrared absorbing compound as taught by Ueda et al as a layer formed on the outermost layer of the device, instead of forming an infrared absorbing dye in resin 7 or 8 (that is use them without a dye for encapsulation of PIN diode) to achieve the predictable result of blocking infrared radiation from reaching the PIN diode.

Regarding **claim 15**, In Paragraph 113, lines 4-10, Ueda et al teaches providing the infrared absorbing layer in the middle (i.e. as an intermediate layer). The infrared absorbing layer has been taught in the same reference, in Paragraph 34, lines 1-6 to include an infrared absorbing compound-impregnated polymer latex. The polymer latex has been taught to include an acryl type resin, well known to be transparent. It would

have been obvious to one of ordinary skill in the art at the time of invention to substitute forming the layer from resin 8 as taught by Kazuo et al, by providing a layer formed from an acryl type resin impregnated by infrared absorbing compound as taught by Ueda et al as a layer formed between resin 7 and resin 8, instead of forming an infrared absorbing dye in resin 7 or 8 (that is use them without a dye for encapsulation of PIN diode) to achieve the predictable result of blocking infrared radiation from reaching the PIN diode.

Claims 5,8,9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kazuo et al, Japanese Application Publication H04-305981 A. (Reference is being made to a certified translation included with this letter) in view of Masuda et al, US Patent 6,323,340, henceforth referred to as Masuda et al.

Regarding **claim 5**, Although Kazuo et al teaches a transparent resin it does not disclose the chemical composition of such transparent resin. However Masuda et al in Abstract lines 10-12, discloses a phthalocyanine compound represented by Formula 1 taught therein. Masuda et al teaches in Abstract lines 2-3 that the compound offers a highly efficient cut of a near infrared ray. The formula taught in Formula 1 is evidently identical to "formula 1". It has been taught in Masuda et al, Abstract, lines 13-17, that Z_2, Z_3, Z_6, Z_7, Z_{10}, Z_{11}, Z_{14} and Z_{15} independently stand for SR^1, OR^2, or a halogen atom, provided that at least

one of them stands for SR^1, OR^2; that Z_1, Z_4, Z_5, Z_9, Z_{12}, Z_{13} and Z_{16} independently stand for NHR^3, SR^1, OR^2 or a halogen atom, provided that at least one of them stands

for NHR^3 and at least four of them stand for OR^2. Therefore "$Z_i(i=1-16)$ is SR_1, OR_2, NHR_3 or a halogen atom" reads Z_i ($i=2,3,6,7,10,11,14$ and 15) standing for SR^1, OR^2, or a halogen atom and Z_i ($i=1,4,5,9,12,13$ and 16) standing for NHR^3, SR^1, OR^2 or a halogen atom as taught by Masuda et al. Masuda et al in Abstract lines 17-22 teaches that a plurality of R^1 , R^2 and R^3 independently to each other stand for substituted or non-substituted phenyl group, a substituted or non-substituted aralkyl group, or a substituted or non-substituted alkyl group of 1 to 20 carbon atoms. Therefore "R_1, R_2 and R_3 are a phenyl group which may have substituent(s), an aralkyl group which may have substituent(s) or a C_1-C_{20} alkyl group which may have substituent(s)" reads on a plurality of R^1 , R^2 and R^3 independently to each other stand for substituted or non-substituted phenyl group, a substituted or non-substituted aralkyl group, or a substituted or non-substituted alkyl group of 1 to 20 carbon atoms as taught by Masuda and discussed above. In Abstract, lines 22-24 Masuda teaches that M stands for a nonmetal, a metal, a metal oxide, or a metal halide. Therefore "M" that is "a nonmetal, a metal, a metallic oxide or a metallic halide" reads on M standing for a nonmetal, a metal, a metal oxide or a metallic halide". In Paragraph 8, lines 8-11 Kazuo et al teaches that the resin 8 has a filter property that is obtained by mixing a dye that absorbs wavelengths near 1050 nm and above. It would have been obvious to one of ordinary skill in the art at the time of invention to modify teachings of Kazuo et al by teachings of Masuda et al, to choose a phthalocyanine compound as taught by Masuda et al, for the purpose of obtaining a layer that absorbs near infrared rays.

Regarding **claim 8**, in Table 1 and in columns 27-41, Masuda teaches a number of examples of phthalocyanine compounds and discloses a list of their maximum absorption wavelengths and other properties. For example in Table 1, Example 1, Masuda et al teaches a phthalocyanine compound characterized as $VOPc(2,5\text{-}Cl_2\ PhO)_8(2,6\text{-}Br_2 - 4\text{-}CH_3\ PhO)_4\{Ph(CH_3)CHNH\}_3F$ with a maximum wavelength absorption of 835 nm and in Example 9, $VOPc(PhS)_8(2,6(CH_3)_2Pho)_4\{PhCH_2NH\}_4$ with a maximum absorption wavelength of 920 nm. These two teachings were known as taught by Masuda et al at the time of invention. Mixing both these compounds has the inherent effect of absorbing light both at and near 835 nm and at and near 920 nm. Although Kazuo et al only teaches resin 8 with one infrared absorbing dye, It would have been obvious to one of ordinary skill in the art at the time of invention to use compound of Example 1 in combination with compound of Example 9 to achieve maximal absorption at and near both 835 nm and 920 nm infrared radiation.

Regarding **claim 9**, the compounds that Masuda et al has taught in Table 1, Examples 1-9 are all taught to be phthalocyanine compounds and in the same Table 1, they are all taught to be "having absorption peaks at different wavelength". Therefore "phthalocyanine compounds having absorption peaks at different infrared wavelengths" read on the two compounds of Example 1 and 9 taught by Masuda et al in Table 1.

Regarding **claim 10**, The maximum absorption wavelength of all compounds taught in Table 1 of Masuda et al lie with in the range of "750 nm to 1000 nm. Therefore "the infrared-absorbing substances" that are "phthalocyanine compounds having

absorption peaks in the range of wavelengths of 750 nm to 1000 nm" reads on any plurality of compounds chosen from Table 1 of Masuda et al.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kazuo et al, Japanese Application Publication H04-305981 A. (Reference is being made to a certified translation included with this letter) in view of Araki et al, US Patent 4,431,762, henceforth referred to as Araki et al.

Regarding **claim 7**, Although Kazuo et al teaches a transparent resin, it does not contain any teachings toward the transmittance spectra or profile or wavelength dependence of the transmittance of the transparent resin taught therein. Araki et al however, teaches a certain compound (A) for a resin taught in Abstract line 2 and subsequent formulae. In column 4 lines 3-10, Araki et al teaches a variety of resins that compound A can be added, including polycarbonate (line 9) and acrylic resin (line 10). In Fig. 1, Araki et al teaches a graph representing the transmittance of the ultraviolet and visible spectrum of the sheet in example 1 taught in Table 1 by adding the compound taught in Table 1 line 1 to resin. The transmittance graph of Sheet 1, therefore, teaches the transmittance of resin used. The graph teaches that the transmittance is constant in the region of 450 nm to 650 nm and the value of constant is near 100% indicating constant transparency in the aforementioned range. Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to

choose the resin taught in Araki et al, to have a resin transparent with constant transmittance in the range of 450 nm to 650 nm.

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kazuo et al, Japanese Application Publication H04-305981 A. (Reference is being made to a certified translation included with this letter) in view of Osamu, Japanese Application Publication H07-254623 A, henceforth referred to as Osamu (Reference is being made to a machine translation)

Regarding **claim 17**, Kazuo et al in Fig. 4, in Paragraph 2, line 3, teaches a PIN diode taught to be a light receiving device, mounted on a substrate. Also it teaches in Fig. 4 that the PIN diode is encapsulated in resin. The precise way this encapsulation is done, is not taught in Kazuo et al. Osamu, however, in Paragraph 8, teaches a step to form the encapsulation. Osamu teaches that encapsulation is made by injecting a transparence resin into the clearance parts of a mold clamp meal, the 1st by which it was mold clamp carried out mutually and the 2nd shaping metal mold (16), and (17). "an upper mold and a lower mold" reads on shaping metal molds (16) and (17) and "a plurality of recesses to be used" reads on the clearance parts of a mold metals. "pouring a light-transmissive resin into the recesses inside the mold" reads on injecting a transparent resin. Examiner takes Official Notice that "curing the resin" was well known at the time of invention to one of ordinary skill in the art, since one of ordinary skill in the art could choose a thermosetting transparent resin that has always been known to need

curing to be hardened. It would have been obvious to one of ordinary skill in the art to encapsulate the device using resin encapsulation as taught by Kazuo et al, by injecting a transparence resin into the clearance parts of a mold clamp meal as taught by Osamu.

Claims 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kazuo et al, Japanese Application Publication H04-305981 A. (Reference is being made to a certified translation included with this letter) in view of Mitsuo et al, Japanese Application Publication S52-011887, henceforth referred to as Mitsuo et al.

Regarding **claim 11**, Kauzo et al, teaches a PIN diode as the light-receiving element. Mitsuo in Abstract teaches a Si Phototransistor as a photoelectric device. It was then well known that the Si Phototransistor. Kazuo et al does not teach a Si Phototransistor as the light receiving element but Mitsuo does. Both devices evidently convert light to electric signal. Because both Mitsuo et al and Kazuo et al teach a device that receives light and generates an electric signal, It would have been obvious to one of ordinary skill in the art at the time of invention, to substitute the PIN diode of Kazuo et al, with Si Phototransistor taught by Mitsuo et al to obtain the predictable result of obtaining a photoelectric device that yields an electric signal when it receives light.

Conclusion

(571) 270-3262. The examiner can normally be reached on M-Th 7:30 am to 6:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian T. Pendleton can be reached on (571) 272-7527. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A.E.

BRIAN TYRONE PENDLETON
SUPERVISORY PATENT EXAMINER